

### Integrating mitigation into hydropower project cycle development

# Initiative for Sustainable Hydropower (ISH)

## ISH0306

Development of Guidelines for Hydropower Impact Mitigation and Risk Management in the Lower Mekong Mainstream and Tributaries

# Impact mitigation and risk management can be integrated into hydropower project cycle as below:



### **Objectives:**

- Thoroughly document regionally relevant hydropower impact avoidance, minimisation and mitigation options for development of hydropower on the Mekong mainstream and tributaries;
- Scope and commission specific research to improve technical and scientific understanding towards improved mitigation options and the adaptation of existing methods to the region; and
- Document in consultation with regional agencies and developers engineering and scientific options, for the avoidance, minimisation and mitigation of risks of mainstream hydropower dams.

Study Approach: Essentially the approach to the study will follow the following steps:

- Understand the baseline natural resource processes and conditions in the Mekong Basin and the nature of hydro developments proposed;
- Describe the potential impacts of these developments as assessed by existing studies;
- Research regional and global experience on mitigation options appropriate for these Mekong hydropower developments;
- Undertake analysis and research into the effectiveness of these mitigation options;
- Make recommendations on improvements and new approaches to impact mitigation;
- Commission further research to cover significant knowledge gaps;
- Provide guidelines and a substantial knowledge base on mitigation approach and solutions based on research and case studies suitable for dissemination through the MRC web site or other media; and
- Build capacity in all areas of assessment avoidance, minimisation and mitigation options within industry and line agencies.

### The geographic scope is twofold:

- 1. The guidelines will be developed to be generally applicable at basin level for the Lower Mekong mainstream and its tributaries.
- 2. A more detailed assessment will be undertaken related to the applicability and operational implications of the guidelines under various scenarios for the mainstream cascade dams north of Vientiane.

The mitigation guidelines will be based on good industrial practise and latest research and technical knowhow. An example overview can be given as follows:

THEMES	RISKS & VULNERABILITIES	STAGES OF PROJECT CYCLE			
		CONCEPT/ FEASIBILITY	DESIGN	CONSTRUCTION	OPERATON
STREAM FLOW	- Flow regime change				
AQUATIC ECOLOGY AND FISH	<ul> <li>Connectivity loss</li> <li>Impoundments</li> <li>Hydropeaking</li> <li>Etc.</li> </ul>		Î	Î	Î
GEOMORPHOLOGY, SEDIMENTs and WATER QUALITY	<ul> <li>Sediment retention</li> <li>Sediment erosion</li> <li>WQ and temperturn changes</li> <li>Etc.</li> </ul>	Guidelines and Options for Mitigation			
BIODIVERSITY and NATURAL RESOURCES	<ul> <li>Wetland inundation</li> <li>Change in ecosystem functions</li> <li>Etc.</li> </ul>	Ļ	Ļ	ļ	ļ

#### **Next steps**

Further national and regional consultation workshops will be organized to discuss 1st interim phase, 2nd interim phase, and Final phase of the study.

